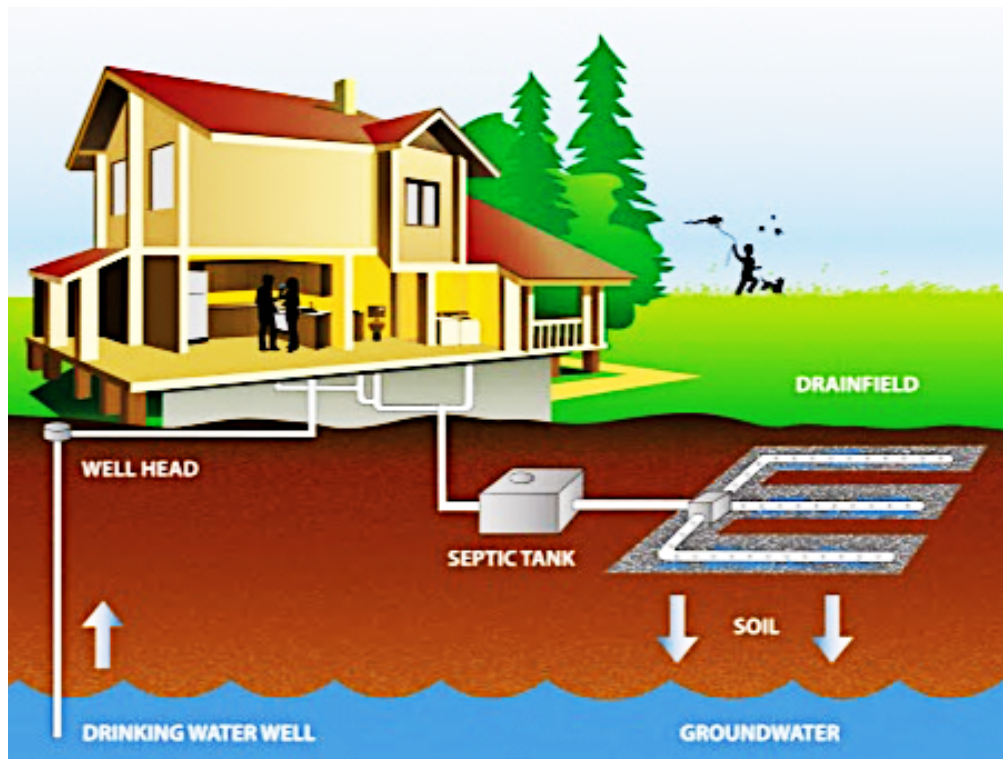


Public Health

Seattle & King County



King County On-site Sewage System Management Plan



Graphic from Washington State Dep. of Health

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The contents of this document do not necessarily reflect the views of the Work Group members or other persons listed.

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EXECUTIVE SUMMARY

There are approximately 85,000 on-site sewage systems (OSS) throughout King County, in both the unincorporated areas as well as cities. When OSS are designed, installed, and operated properly, they do not negatively impact the environment and form an important part of the overall wastewater treatment infrastructure in King County. When they are not properly operated or maintained, or when they fail, untreated wastewater can contribute viruses, bacteria and pathogens to ground and surface waters.

The US EPA estimates that 10 to 20% of OSS nation-wide are not effectively treating wastewater, or have failed completely. And unfortunately, not all system failures show visible signs of untreated sewage. OSS can also contribute harmful chemicals to ground and surface waters when toxic household products are flushed or disposed of down drains into OSS.

State laws and rules and County codes require OSS to be designed, permitted and installed properly. They also require proper post-installation operation and maintenance, as well as professional repairs, when they fail. The burden for each of these activities resides with the OSS owner, however, there is a required oversight role for local health jurisdictions – that role is held by Public Health – Seattle and King County. Public Health works to fulfill that role through its support of a comprehensive management program for OSS. This Plan Update document embodies that effort.

One of the foundations of a comprehensive OSS management program is knowing how many OSS exist in King County, where they are located and what condition they are in. Accurate data, and a system to collect and maintain those data, are basic requirements. Data systems must be able to accept information, maintain it, and provide access to it by Public Health staff, OSS professionals, real estate agents, home and business owners with OSS, and the public in general.

Another critical piece of a comprehensive approach to OSS management is the identification of increased risk areas. The areas that might be impacted by OSS are spelled out in law, and include: shellfish beds, drinking water aquifers, wellhead protection areas, water recreation areas, areas currently violating water quality standards, areas growing crops for human consumption, floodplains, areas already contaminated with nitrogen, and other locally designated areas.

In an effort to be as efficient as possible, Public Health proposes to focus its limited staff and resources on areas where 1) OSS are impacting shellfish, and 2) areas where failing OSS is suspected as a result of water quality sampling. Public health will also focus efforts on educating the public to improve proper care of OSS and increase the number of systems that are regularly inspected.

A variety of other considerations are listed in this plan, including addressing equity and social justice concerns; designating additional Marine Recovery Areas (MRAs); addressing areas which are legally classified as impaired or have regulatory total maximum daily loads (TMDLs) (pollution budgets) set for them; critical aquifer recharge areas; areas with vulnerable institutions such as schools; and other considerations, such as environmental vulnerability,

higher development densities/higher population density, the age of OSS (pre 1978-79 installations), and problem areas identified through past sanitary surveys. However, without additional resources, these other considerations cannot be addressed.

With regard to operation, monitoring, and maintenance in increased risk areas, specific additional actions are required. This Plan recommends consideration by PHSKC to consider adopting protocols similar to ones that have achieved significant improvements in polluted areas in Thurston County. That protocol proposes that areas with OSS pollution be designated for special attention.

In addressing MRAs, this Plan affirms that new MRAs must be designated (by the Health Officer) when shellfish areas are threatened or downgraded by pollution from OSS, or when marine waters are threatened by low dissolved oxygen, fecal coliform or nitrogen. It proposes additional requirements for OSS in MRAs, including: professional inspections; submittal of a record drawing; conducting sanitary surveys by Public Health; and bringing OSS and plumbing up to current code standards when water-front properties are remodeled.

It also notes the current deficiencies and needs in MRAs, such as the need to: identify all OSS; have data systems to hold that data; set minimum levels of operation and maintenance; determine failures determinations and inform OSS owners of those failures. Additionally, enhanced education and outreach is critical to encourage voluntary compliance in MRAs. Training and certification of OSS industry professionals is needed to ensure that repairs are made correctly by those professionals and not by unlicensed and unscrupulous individuals. Lastly, Public Health must be able to manage, monitor and track progress to be able to report that progress to elected officials, state agencies, tribal governments and the public in general.

On the broader scale, education and outreach is required to encourage compliance. This Plan lays out a menu of possibilities which could be targeted at all audiences, the general public, new OSS owners, owners of existing OSS, real estate agents, OSS industry professionals, and partner agencies. However, with the currently identified, limited resources, this Plan recommends that resources be concentrated in three areas: the use of existing, and when necessary, the development of new informational materials; the development of website capability to be a primary information conduit; and access to OSS information at the individual parcel level for OSS owners. In MRAs, the Plan recommends additional steps, including the creation of customized materials; the listing of specific MRA requirements on Public Health's website; the training of OSS industry regarding MRA specific requirements, and Public Health engaging in targeted outreach to help craft community level solutions.

The implementation plan and financing section summarizes the other sections of the Plan. It captures Work Group member recommendations with regard to database needs; increased-risk areas; education and outreach; and various general program recommendations. This section also notes that currently identified resources are restricted and insufficient to provide a comprehensive OSS O&M management program county-wide. These limitations not only impact Public Health's program internally, but also its ability to provide customer service on issues that are not directly fee supported. Those issues, in addition to the ones previously mentioned, include the ability to provide technical support, incentives, subsidies and discounts to OSS owners to encourage voluntary compliance.

INTRODUCTION

Comprehensive Management of On-site Sewage Systems is Important

Safe surface and ground water is important for everyone in King County, however on-site sewage systems (OSS) that are improperly designed, installed, operated, and not maintained can pollute those waters. There are approximately 85,000 on-site sewage systems in King County. Each of those systems serves an average of 2.5 people. Each of those people uses an average of 70 gallons of water per day. That equates to nearly 15 million gallons of wastewater flowing from homes and businesses each day. Systems that treat wastewater appropriately are beneficial because they contribute safe water to the watershed. When these systems fail, untreated wastewater can contribute viruses, bacteria and pathogens to ground and surface waters.

Improperly operated OSS can also contribute harmful chemicals to ground and surface water. This can occur through flushing or disposal down drains into an OSS (see Figure 2). Some examples of potential pollutants include: harsh household cleaners (disinfectants, ammonia, excess detergents and bleach, drain openers/cleaners, oven cleaners, spot and stain removers); pesticides/herbicides/fungicides; paint related products (paint, preservatives, polishes, stains, thinners and strippers); automotive products (oils, fuels, antifreeze, degreasers, solvents, metal cleaners, and other garage chemicals); hobby and photographic chemicals; personal care products (nail polish and acetone polish remover, antibacterial soaps, lice shampoos, makeup); and unwanted and expired medicines and pharmaceuticals. These products can disrupt the natural biological processes within the septic tank, kill helpful bacteria in the soil that treat drainfield effluent, and directly pollute ground and surface waters.

Properly operating and maintaining an on-site sewage system, and avoiding disposal of hazardous waste in them, also protects a homeowner's investment. Having to repair, or install, a new or upgraded OSS can cost a homeowner thousands, to tens of thousands, of dollars. Unfortunately, many homes are served by systems that were installed over fifty years ago as temporary remedy until municipal sewers were built. Many of these systems were installed prior to modern design standards which were adopted nation-wide in 1978-79. The US EPA says that from state data, it is estimated that 10 to 20% of OSS nation-wide are not effectively treating wastewater, or have failed completely (EPA 2005). Some of the failing OSS may not show any visible signs of failure but pollution can travel long distances in ground and surface water.

In some cases, older systems were installed without a drainfield or any treatment component at all. There are documented examples in King County of systems directly discharging wastewater from sinks, toilets, showers, clothes washers, etc., directly into Puget Sound. For all of these reasons, it is critically important to know how many systems there are in King County, where they are located, and how they are functioning.



Figure 1, Potential pollution impacts from OSS.

Public Health's OSS Responsibilities

Public Health, through the King County Board of Health, has broad statutory authority and responsibility "...over all matters pertaining to the preservation of the life and health of the people within its jurisdiction..." (from RCW 70.05.060). It is charged in that statute to "(1) Enforce... the public health statutes of the state and rules promulgated by the state board of health and the secretary of health; (2) Supervise the maintenance of all health and sanitary measures for the protection of the public health within its jurisdiction; (3) Enact such local rules and regulations as are necessary in order to preserve, promote and improve the public health and provide for the enforcement thereof; (4) Provide for the control and prevention of any dangerous, contagious or infectious disease within the jurisdiction of the local health department; (5) Provide for the prevention, control and abatement of nuisances detrimental to the public health; (6) Make such reports to the state board of health through the local health officer or the administrative officer as the state board of health may require; and (7) Establish fee schedules for issuing or renewing licenses or permits or for such other services as are authorized by the law and the rules of the state board of health: PROVIDED, That such fees for services shall not exceed the actual cost of providing any such services."

RCW 70.118.010, Legislative declaration, says, "The legislature finds that over one million, two hundred thousand persons in the state are not served by sanitary sewers and that they must rely on septic tank systems. The failure of large numbers of such systems has resulted in significant health hazards, loss of property values, and water quality degradation." RCW

70.118.030(1) says, “Local boards of health shall identify failing septic tank drainfield systems in the normal manner and will use reasonable effort to determine new failures.” These statutes specifically direct Public Health to manage the 85,000 on-site septic systems throughout King County as required by RCW 70.118A and WAC 246-272A. King County estimates that approximately 15 million gallons of sewage come from on-site sewage systems each day.

To meet these statutory requirements and responsibilities, Public Health must:

- ▷ Protect the public’s health from diseases caused by improper siting, construction, operation and maintenance, failure or abandonment of OSS.
- ▷ Uphold state law that regulates OSS siting, design, permitting, building, operation, maintenance and abandonment.
- ▷ Ensure that all OSS meet current code requirements when permits are issued for new construction, significant remodels, new or expanded OSS, or significant repairs/changes to existing OSS.
- ▷ Determine what public health and water quality risks exist from OSS and adopt county-wide regulations to manage those risks.
- ▷ Develop an OSS program that is effective, fair and as efficient as possible so that staff can focus their expertise and efforts on proper siting, design, permitting and installation, as well as working with owners of existing OSS to ensure they know how to operate and maintain their system and that have operation and maintenance issues.
- ▷ Communicate and coordinate with state agencies and local jurisdictions on wastewater issues that affect and impact the citizens of King County.
- ▷ Maintain a working relationship and meet regularly with OSS industry professionals to clarify new requirements, listen to concerns and resolve problems. Maintain quality control of OSS industry professionals.
- ▷ Provide OSS owners (current and prospective) with information and education about properly operating and maintaining their OSS in order to meet their legal responsibilities, extend the life of their OSS, protect the health of the community and protect their investment.
- ▷ Confirm that property transfer inspection reports submitted to Public Health are complete and accurate through its OSS Time of Sale inspection program. This program provides information to the buyer, assists the seller with their disclosure obligations and helps the County identify unknown systems.
- ▷ Ensure food establishments with OSS have, at a minimum, an annual inspection.

Legal Requirements to Manage OSS

In addition to the previously cited statutory requirements, Washington Administrative Code 246-272A-0015, Local management and regulation, requires a comprehensive on-site sewage system operation and maintenance oversight program be carried out by local health jurisdictions (LHJs). The elements outlined in the WAC incorporate four key functions which can

be thought of as the supporting “pillars” of a comprehensive OSS Program. These four pillars include:

- ▷ New OSS permitting and inspections
- ▷ Supporting proper operation and maintenance (O&M), and preventing failures
- ▷ Finding failing OSS and problem sites
- ▷ Fixing failing OSS.

Each of these pillars must stand on a base of “foundational services” that enables their activities. The foundational services include managing the program, using scientific and robust OSS data to prioritize the work, and supporting data systems that are available to the public via the internet. See Figure 2.

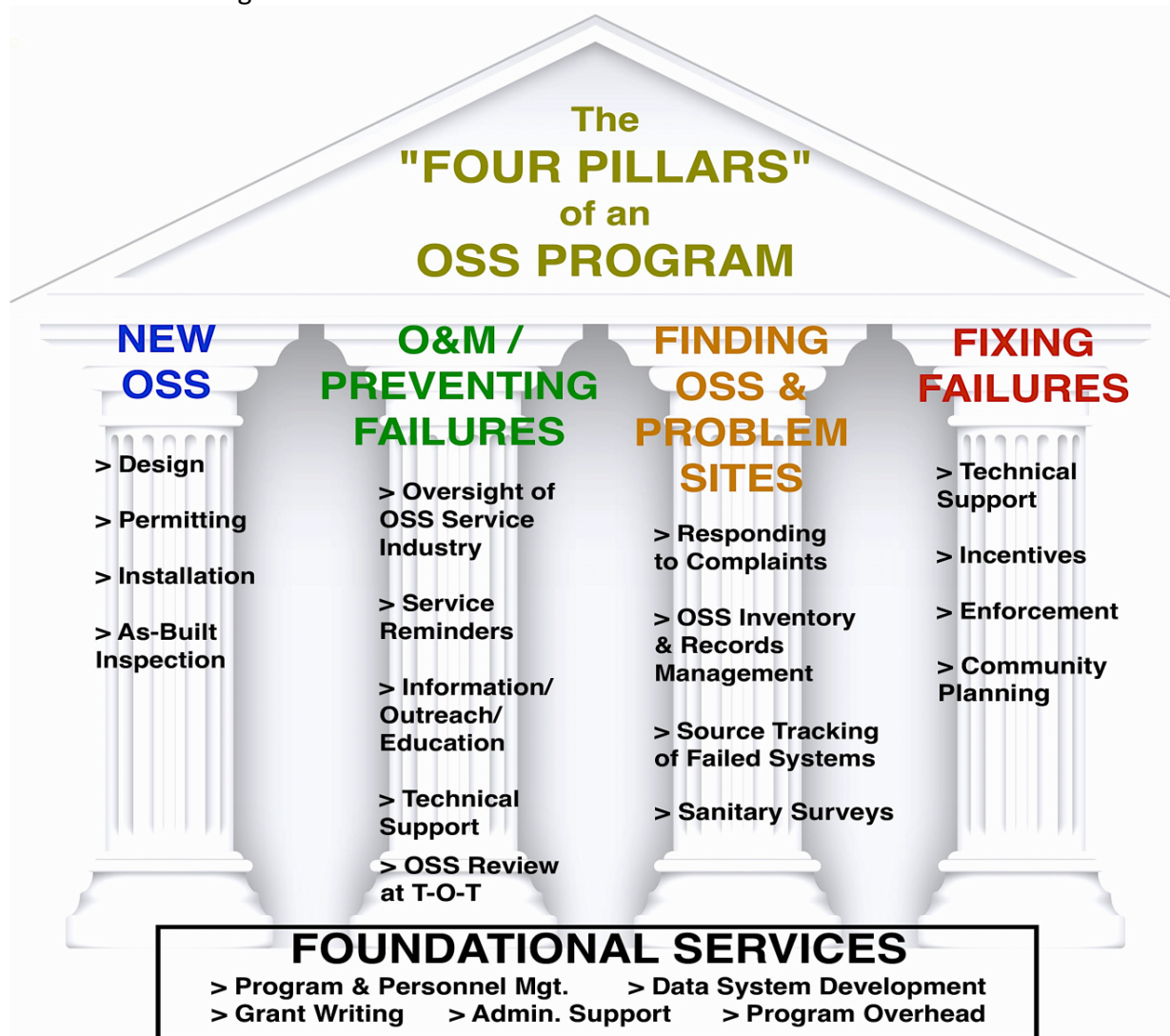


Figure 2, The Four Pillars of an OSS Program.

Process Used to Develop this Plan

In 2007, Public Health worked with an advisory group to develop an On-Site Sewage Management Plan. The King County Board of Health adopted that Plan which included the following eight elements: electronic database enhancement, identification of sensitive areas and Marine Recovery Areas, education, quality assurance, enforcement, funding strategy, performance measurement, and implementation strategy. While that 2007 Plan attempted to address all the components that make up a comprehensive OSS Program, it was never funded, and consequently many of the actions outlined within it have not been completed.

In 2016, as OSS problems, and the pressure to address them, has increased, the King County Board of Health passed Resolution 16-03. That Resolution directed Public Health to identify all parcels that should be served by an OSS throughout King County, update the 2007 Plan, and seek sustainable funding to implement that updated plan.

To update the plan, Public Health assembled a Work Group composed of representatives from the OSS industry, Realtors, builders, home and business owners with OSS, unincorporated area councils, cities with OSS, relevant state agencies, other relevant King County agencies, area Tribes, utilities, homeowner associations, and other community groups (listed on page iii). The Work Group met in 2016 starting in March and concluded its discussions in August. Additional public comments have been taken and the comment period will remain open through 2016. This document is the result of that work and those comments. In parallel with the Work Group discussions on the plan update, Public Health initiated a process to fund the OSS Program and the implementation of this Plan. Those efforts involved seeking an OSS management fee from OSS owners. That effort proved unsuccessful and has been tabled.

Overall Goal of the Plan

The goal of an OSS management plan is to ensure that OSS are properly operated and maintained, failures are prevented, and larger areas do not become polluted, like the Marine Recovery Area on Vashon Island, Poverty Bay in the Federal Way area, and other potentially problematic areas described in this document. This plan aims to be preventative by encouraging proper O&M, to spare the expense to OSS owners of fixing a failed system, as well as the expense to the general public when an area becomes polluted and has to be cleaned up.

The approach used in this document, which updates the 2007 Plan, is to develop a more realistic work plan that is linked to Public Health's OSS Program capabilities within the scope of its limited resources. As Public Health's OSS Program has no sustainable funding source for its general oversight of OSS O&M, it must focus its efforts on the most critical OSS issues that impact public health and the environment. The program proposes to focus efforts on ensuring open shellfish beds remain open and increasing the number of regular inspections by embracing continuous improvement, instituting best management practices, empowering employees to innovate, and striving for second-to-none customer service. This effort will help homeowner's better care for their systems, reduce the number of premature failures, and may result in a small amount of additional resources.

PART 1: DATABASE DEVELOPMENT, MAINTENANCE AND MANAGEMENT

Introduction

Accurate data is needed to know how many systems are located in King County, track performance of complex OSS, document pollution from OSS, track how many failures there are, ensure failures are repaired, and communicate with OSS owners.

RCW 70.118.030(1) requires that “Local boards of health shall identify failing septic tank drainfield systems in the normal manner and will use reasonable effort to determine new failures.” WAC 246-272A-0015 requires local health jurisdictions to “(a) Progressively develop and maintain an inventory of all known OSS in operation within the jurisdiction; and (f) Maintain records required (under WAC 246-272A), including of all operation and maintenance activities as identified”. To efficiently comply with these laws and rules, the creation of an electronic database is necessary.

Additionally, RCW 70.118A.060, Local health officer duties – Electronic data systems, says that in a marine recovery area, each local health officer shall “(1) Require that on-site sewage disposal system maintenance specialists, septic tank pumpers, or others performing on-site sewage disposal system inspections submit reports or inspection results to the local health jurisdiction regarding any failing system; and (2) Develop and maintain an electronic data system of all on-site sewage disposal systems within a marine recovery area to enable the local health jurisdiction to actively manage on-site sewage disposal systems. In assisting development of electronic data systems, the department shall work with local health jurisdictions with marine recovery areas and the on-site sewage disposal system industry to develop common forms and protocols to facilitate sharing of data. A marine recovery area on-site sewage disposal electronic data system must be compatible with all on-site sewage disposal electronic data systems used throughout a local health jurisdiction.”

OSS Database Goals

To implement the requirements of both the WAC and RCW, a unified and robust database must be developed and maintained. It is also the only practical approach to efficiently manage the approximately 85,000 OSS throughout King County.

For an OSS database to be useful, it must be able to: efficiently take in all necessary data from all relevant sources; accommodate a variety of different types of records; offer opportunities to correct those data; compile those data so that customized research can be done; and make those records available to a variety of audiences, both internal and external.

Database Implementation

Developing an OSS Database Structure

Database development includes a variety of tasks. Structures must be available to house all of the relevant data or linkages must be made to other databases such that their data can be shared so that a unified picture of each parcel with an OSS can be developed and maintained. Linkages must be made among a variety of existing systems. One system is the King County Assessor’s database, which can show whether a parcel has an OSS. King County GIS is another

system which needs to be linked to geographically map those parcels. Data tracking software, which is used by Public Health to catalog and maintain current OSS records of O&M reports, site applications, installation permits, failing system complaints, and other complaints, is a foundational piece that must be tied in to this overall database structure. Another software package that Public Health uses to house image records, such as record drawings, site applications, building applications, monitoring reports, and unindexed files, is another critical database that must be linked to the others. And lastly, software that can track OSS O&M data from OSS industry professionals, must play a part in this overall database structure. Significant additional programming work is needed to link existing systems and automate updates.

Adding Information to the OSS Database

After the database structure is developed, a variety of actions must take place. There is a significant backlog of physical files and files on older technology (microfiche) that needs to be entered into the database. Existing data must also be gathered and held from the linkages described above. Those data might include small businesses with OSS; older OSS beyond a certain installation date; OSS in areas with higher potential for ground water contamination; and OSS in proximity to shorelines, lakes and streams. Those data must be regularly updated, and those updates must be automated to the greatest extent possible.

Next, all new relevant data must be fed into the database as it is created, including from internal sources such as permit information for new systems, remodels, expansions, or upgrades; connections to new municipal sewer service and decommissioning older OSS; OSS inventory work by Public Health staff to identify unknown or previously unreported systems; and information from OSS industry professionals who might identify previously unidentified systems by servicing them. Each of these data entry methods should be as efficient as possible and eliminate repetitive data entry steps. One example is to support and require all OSS industry professionals to enter their data on-line and eliminate paper reports. Another example is using an on-line public portal so that permit applications, O&M records and payments can be submitted electronically by OSS owners.

Managing the OSS Database

Once the database has been developed and all relevant data has been included, the database requires management. Regular maintenance and oversight of data collection and updating is essential. If the data is error prone or out of date, management and permit decisions could be affected and poor public service could result. In addition to data management, the database structure must be maintained. Software changes, changes to data structures to accommodate changing mission requirements, and hardware upgrades can all impact the overall database structure and operation. These changes and upgrades require planning, implementation and testing to maintain program outcomes by use of the database.

Getting Information from the OSS Database

Lastly, being able to get data out of the database, in a variety of forms, to meet a variety of needs, by different audiences, is critical. Data is needed internally by Public Health staff to:

- ▷ Ensure that all OSS have been identified.

- ▷ Review and issue permits.
- ▷ Gauge whether O&M is being done.
- ▷ Send out service reminder notices to OSS owners.
- ▷ Track complaints.
- ▷ Track failing systems, repairs and enforcement actions.
- ▷ Identify historically underserved populations with OSS and target them for additional or customized assistance.
- ▷ Manage the overall recovery of MRAs or other high-risk areas.

Public Health must also generate reports and statistics on both individual systems, and at an aggregate level by geographic areas or areas with certain characteristics. These reports are needed to manage the OSS Program, to report to elected officials and the public, and to report to relevant state and federal agencies with oversight authority.

Data is also needed to provide customer service to external audiences. OSS owners should be able to access the records for their property to know what information is there, to add information and to correct errors. OSS industry professionals should be able to see what information exists for a property to know what previous O&M has taken place. Real estate agents must be able to see a property's OSS status so they can work with both the seller and buyer to ensure that sales can take place smoothly. And permit seekers should be able to track the progress of their permit applications for a specific property.

Conclusion

A core body of work is needed to develop, maintain and manage, and provide access to a database system. As has been stated previously, an accurate and comprehensive database system is a critical foundation for Public Health's OSS program. However, with limited funding, much of the work that is needed for database management cannot be done on a comprehensive level. Based on limited funding, database efforts will first concentrate in MRAs and other areas of increased risk. However, without this work being done county-wide, significant gaps will continue in what is known about the state of OSS, and the number of failures, throughout King County. This is a concern for the protection of both public health and the environment as a whole.

PART 2 – IDENTIFICATION OF INCREASED RISK AREAS

Introduction

This part of the Plan describes King County, lists the increased risk areas that are required to be addressed under WAC 246-272A-0015(1)b. and describes what is known about those areas. It then sets the OSS Program's priorities based on that knowledge. Marine Recovery Areas (MRAs) are also areas that require special, focused attention, as directed in RCW 70.118A. Part 4 of this Plan discusses MRAs in detail. Maps of the various other areas described in this chapter will be posted on the King County OSS Management Plan website at:

<http://www.kingcounty.gov/healthservices/health/ehs/wastewater/2016-oss-plan-update.aspx>.

Description of King County

Jurisdictional boundary

King County covers 2,130 square miles, and is the size of the state of Delaware. It extends from Puget Sound in the west to 8,000 foot Mt. Daniel at the Cascade crest to the east. King County's various landforms include saltwater coastline, river floodplains, plateaus, slopes and mountains, punctuated with lakes and salmon streams. Lake Washington, covering 35 square miles, and Lake Sammamish with 8 square miles are the two largest bodies of fresh water. Vashon-Maury Island in Puget Sound and Mercer Island in Lake Washington provide different island environments.

Demographics & Population

As of April, 2016, King County has a population of approximately 2.1 million, with the vast majority, 1.86 million or 88.5%, residing in its thirty-nine cities. There are approximately 246,000, or 11.5%, of its population living in its unincorporated areas. There are thirty-nine cities in King County, the largest being Seattle with a population of 687,000, and the smallest being Skykomish with a population of 200. This unincorporated area population is nearly double its second largest city's population (Bellevue), and would make it larger than any city in King County except Seattle. For more information see the Washington State Office of Financial Management's population estimates webpage at: <http://www.ofm.wa.gov/pop/april1/>. Current race and ethnicity data shows the following population makeup in King County.

Table 1, King County Race/Ethnicity Percentages.

Race/Ethnicity Category	% of the Population
Asian	14.5%
Hispanic	8.9%
African American	6.0%
Multi-ethnicity	4.1%
Native American	0.7%
Native Hawaiian/ Pacific Islander	0.7%
Total People of Color	35.2%
White	64.8%
Total Population	100.0%

For more information, see the King County Executive's Equity and Social Justice webpage at: <http://www.kingcounty.gov/elected/executive/equity-social-justice/tools-resources/maps.aspx>.

Topography & Drainage

The topography of the King County Area ranges from nearly level to very steep. Depressions occur in various places. Soils in depressions show characteristics associated with wetness, namely gray and bluish mottles. Examples are soils of the Bellingham and Puget series. Soils formed on the highest mounds of the valley bottoms are well drained. Sloping soils on the upland terraces and in very steep mountainous areas are well drained and moderately well drained. The hazard of erosion generally increases with the increasing steepness of topography. Four major river basins with salmon-bearing streams are separated by steep-sided plateaus whose slopes are subject to landslides and erosion.

Geology and Soils

The soils and land type of the King County Area formed largely in deposits of glacial drift laid down during the Vashon period of the Fraser glaciation. The major kinds of material left by the glacier are till; recessional outwash; and pre-glacial, lacustrine and outwash sediments. Following deglaciation, alluvium accumulated in the valleys, and a mudflow from Mount Rainer covered a large area in the vicinity of Enumclaw.

Increased Risk Areas

WAC 246-272A-0015(1) requires Public Health to protect the following areas from pollution by OSS: shellfish growing areas, sole source aquifers designated by the US EPA, potable (drinking) water aquifers, wellhead protection areas for Group A public water systems, water recreation facilities, groundwater special protection areas (designated by the WA Dept. of Ecology), wetlands used for the production of crops for human consumption, frequently flooded areas, nitrogen impacted areas, and other areas designated by the local health officer.

What is known about those Areas in King County

In general, water quality in King County varies from good to critically impaired and is described in the Washington State Department of Ecology's 2014 state water quality assessment. Bacteria impairments include 174 locations including creeks, lakes, and rivers. Of those, 122 will require a pollution budget/total maximum daily load (TMDL) be set to plan for controlling those bacteria. For more information see Washington State Department of Ecology's water quality assessment and 303(d) list webpage at: www.ecy.wa.gov/programs/wq/303d/index.html.

Shellfish protection districts or shellfish growing areas:

All marine shorelines along the King County mainland are classified by the Washington State Department of Health as closed for recreational shellfish harvest due to pollution. The exceptions are beaches at Dash Point State Park in Federal Way and beaches on Vashon-Maury Island. Those areas are a mix of beaches that are closed for various reasons or are areas that are either unclassified or classified as closed due to pollution. For specific beach information, see the

Washington State Department of Health's Shellfish Safety Information webpage at:
<https://fortress.wa.gov/doh/eh/maps/biotoxin/biotoxin.html>.

The Quartermaster Harbor and East Passage areas on Vashon-Maury Island has been designated as a Marine Recovery Areas (MRAs) by Public Health under RCW 70.118A, because of OSS pollution of shellfish beaches. For more information, see Public Health's MRA webpage at:
<http://www.kingcounty.gov/healthservices/health/ehs/wastewater/mra.aspx>. Additional MRAs may be designated as needed to address OSS pollution of shellfish beaches.

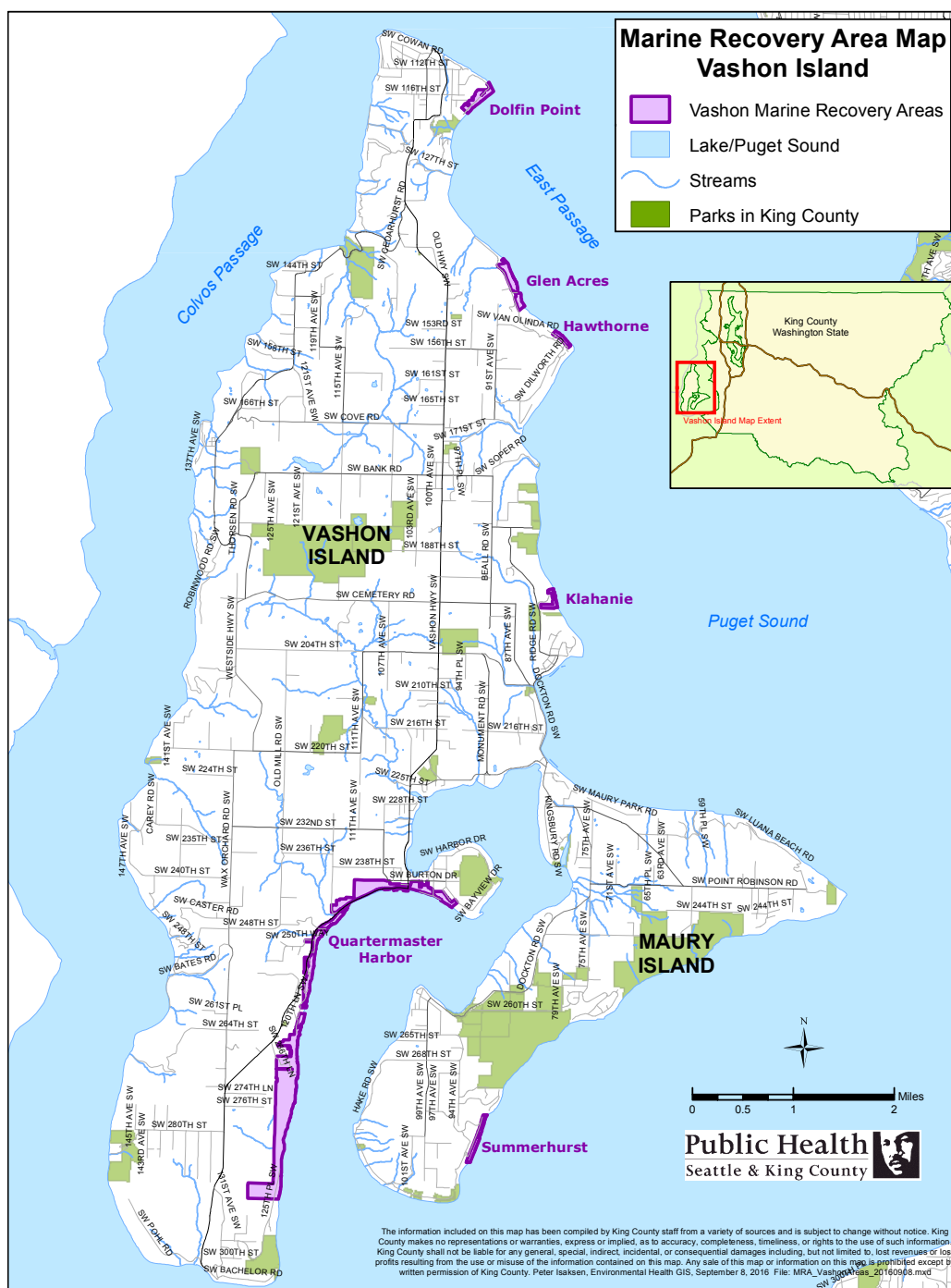


Figure 3, Map of the Vashon Island Marine Recovery Areas.

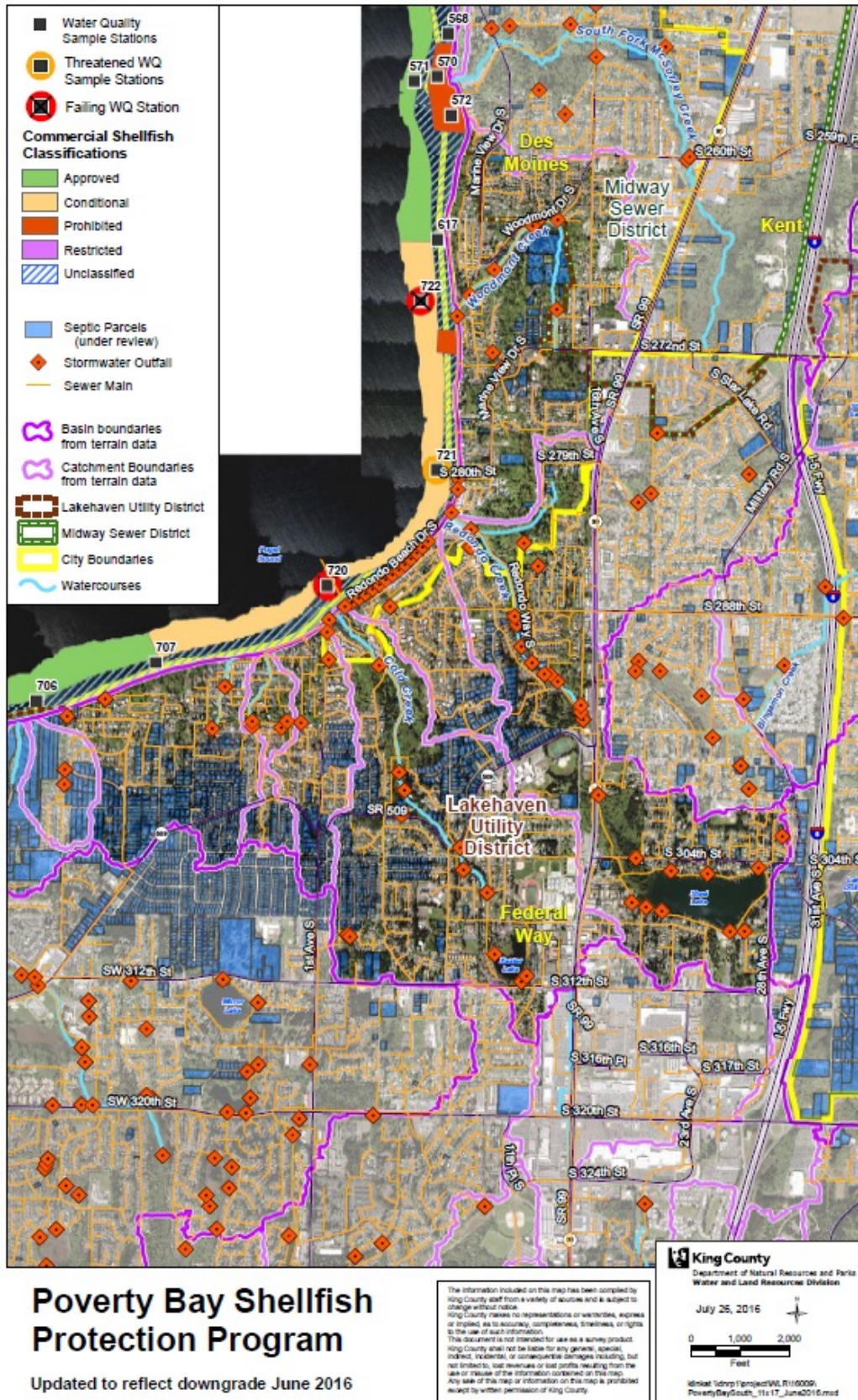


Figure 4, Map of Poverty Bay, Federal Way area.

Sole source aquifers designated by the US EPA:

The US Environmental Protection Agency designated three Sole Source Aquifers in King County. They are the Cedar Valley (Renton) Aquifer, Vashon-Maury Island Aquifer, and the King County portion of the Cross Valley Aquifer. More information can be found on the US EPA Region 10 website at: <https://yosemite.epa.gov/r10/water.nsf/sole+source+aquifers/ssamaps>.

Areas in which aquifers used for potable water as designated under the Washington State Growth Management Act, RCW 36.70A are critically impacted by recharge:

RCW 36.70A, the Growth Management Act, requires counties to designate Critical Aquifer Recharge Areas (CARA). These areas recharge groundwater and provide water quality protection to aquifers used as sources of potable (drinking) water. Maps depicting these critical areas can be found on the King County GIS Center's webpage at:

<http://www5.kingcounty.gov/sdc/Metadata.aspx?Layer=cara&XMLAvail=True>.

King County has five Groundwater Management Areas with plans, which include: East King County, Issaquah Creek Valley, Redmond-Bear Creek Valley, Vashon-Maury Island and South King County. More information can be found on King County Department of Natural Resources and Parks' website at: <http://www.kingcounty.gov/environment/water-and-land/groundwater/management-areas.aspx>.

Designated wellhead protection areas for Group A public water systems:

Water supplies in King County come from a combination of public utilities and private wells. For information about Group A and B water-supply systems in King County, see the Washington State Department of Health's Drinking Water System Data webpage at:

<http://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/DrinkingWaterSystemData>.

For information about private wells in King County, see the Washington State Department of Ecology's Water Well Log website at:

<https://fortress.wa.gov/ecy/waterresources/map/WCLWebMap/>.

For the locations of specific wellhead protection areas that have been designated in King County, see the King County GIS Center's webpage at:

<http://gismaps.kingcounty.gov/iMap/?mapset=GroundWater>

Up-gradient areas directly influencing water recreation facilities designated for swimming in natural waters with artificial boundaries within the waters as described by the Water Recreation Facilities Act, chapter 70.90 RCW:

There are no currently known water recreation facilities or swimming areas that are being impacted by OSS in King County.

Areas designated by the department of ecology as special protection areas under WAC 173-200-090, Water quality standards for ground waters of the state of Washington:

There are no additional areas in King County designated by the Department of Ecology as special protection areas, aside from those already protected under EPA sole source designation, King County CARA designations and within King County Groundwater Management Areas.

Wetland areas under production of crops for human consumption:

King County does not have any known wetland areas used for the production of crops for human consumption which might be impacted by OSS.

Frequently flooded areas including areas delineated by the Federal Emergency Management Agency and or as designated under the Washington State Growth Management Act, RCW 36.70A:

The King County Flood Hazard Management Plan depicts flood hazard areas, which are designated as such by the Federal Emergency Management Agency or by King County under their Critical Areas Ordinance. The 2013 King County Flood Hazard Management Plan Update is available on King County Department of Natural Resources and Parks' website at:

<http://www.kingcounty.gov/depts/dnrp/wlr/sections-programs/river-floodplain-section/documents/flood-hazard-management-plan-update.aspx>

Areas where nitrogen has been identified as a contaminant of concern:

Sources of nitrogen pollution include fertilizers used in agriculture, on golf courses and cumulative effects from landscaping practices in urban areas; manure from livestock and from concentrations of pets in urban areas; from OSS in denser concentrations; and municipal sewage discharges (outfalls). Nitrogen can pollute groundwater, surface waters and marine waters. More information can be found on King County Department of Natural Resources and Parks' website at: <http://www.kingcounty.gov/environment/water-and-land/groundwater/management-areas/vashon-maury-island-gwma/Assess-assets.aspx>. Areas impacted by nitrogen can also be found on King County Department of Natural Resources and Parks' website at: <http://www.kingcounty.gov/environment/water-and-land/groundwater/maps-reports/maps.aspx>.

In King County, the zoning code, 21A.24.316, Critical aquifer recharge areas — development standards, specifies, "The following development standards apply to development proposals and alterations on sites containing critical aquifer recharge areas:

A. Except as otherwise provided in subsection H. of this section, the following new development proposals and alterations are not allowed on a site located in a category I critical aquifer recharge area:

13. On lots smaller than one acre, an on-site septic system, unless:
 - a. The system is approved by the Washington state Department of Health and has been listed by the Washington State Department of Health as meeting treatment standard N as provided in WAC chapter 426-172A; or
 - b. The Seattle-King County department of public health determines that the systems required under subsection A.13.a. of this section will not function on the site."

Other areas of concern designated by the local health officer.

No other areas in King County have been officially designated by the local health officer as priorities. However, failing septic systems are failing in pocket areas; due to the age of the septic system, non-existent reserve areas to replace a failing septic system, too small a lot size, inadequate soil treatment available, high groundwater, extended families moving into homes exceeds the system design and water capacity causing system failures.

Significant work is needed to identify high density areas that have small lots, poor soil, and old on-site sewage systems. Work is needed to document the environmental and current status of systems to develop competitive grant applications to seek funding for sewer extension projects. These areas are often lower income and racially diverse, social equity and justice considerations should be considered. The following maps depict challenging site conditions that include a high density of OSS, small lots, and poor site and soil conditions:



Figure 5, Map of the Derbyshire Plat, City of Kent.

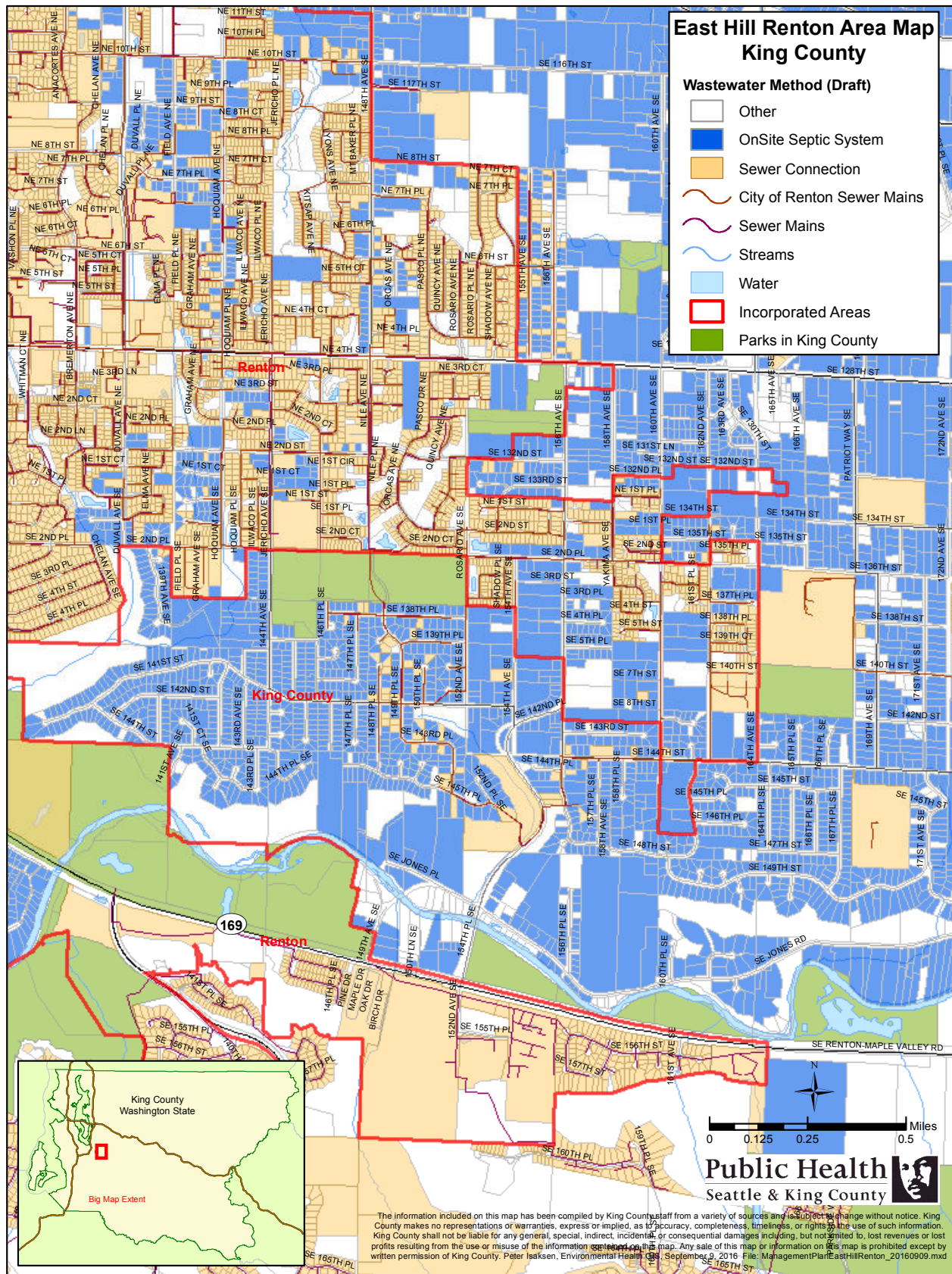


Figure 6, Map of the East Hill, City of Renton.

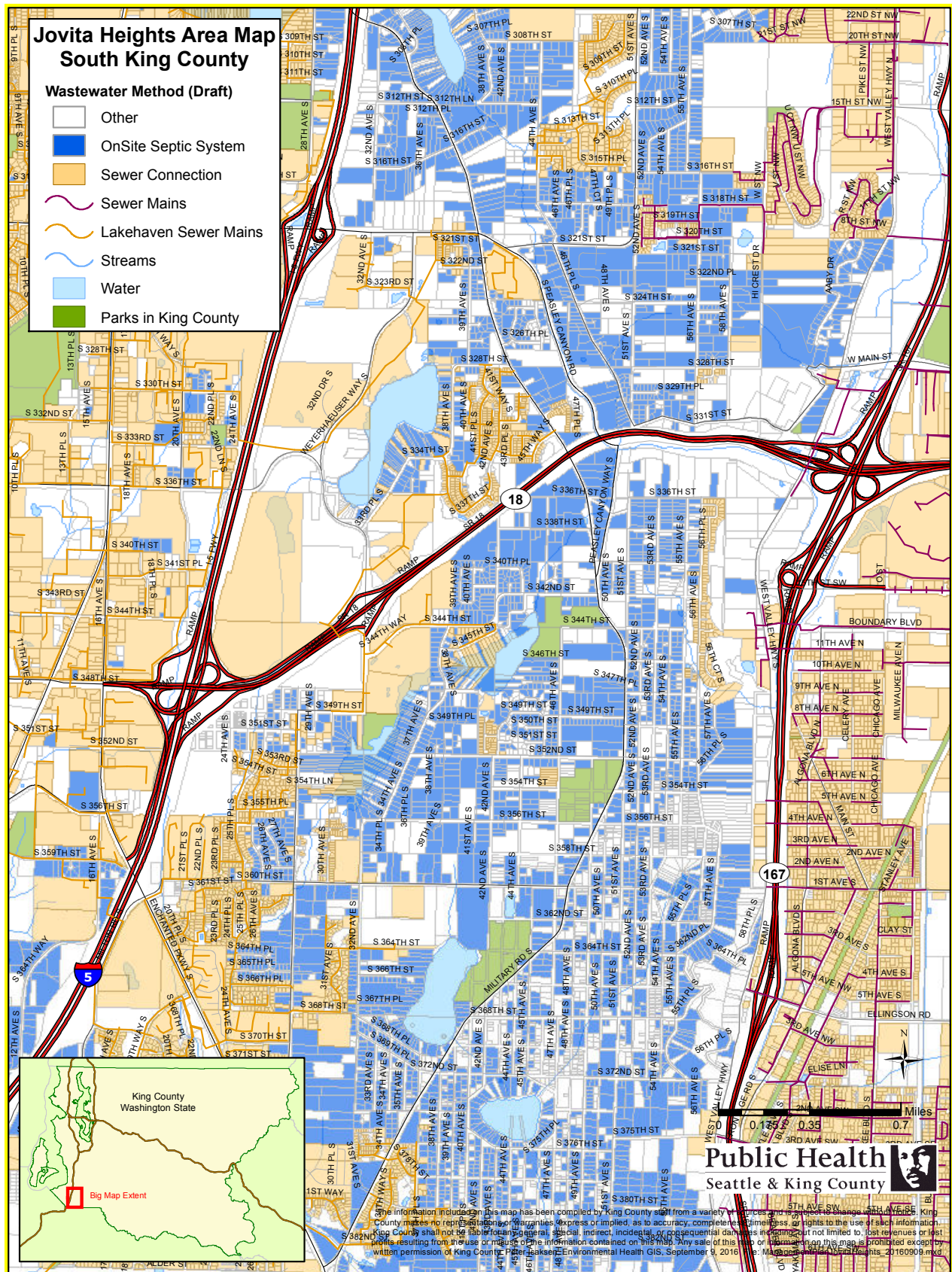


Figure 7, Map of Jovita Heights, Federal Way/Auburn area.

Coordination with the King County comprehensive land use plan:

Sewage treatment and OSS are addressed in the *2012 King County Comprehensive Plan* (adopted December 2012, updated November 2013 and June 2014), in Chapter 8 - Services, Facilities & Utilities; Section II - Facilities and Services; Subsection I - Public Sewers and On-Site Wastewater Treatment and Disposal Systems.

Those policies support municipal sewage service and conversion of OSS to municipal service in the urban growth areas (UGAs). Policy F-255 states, “In the Urban Growth Area, all new development shall be served by public sewers unless: a. application of this policy to a proposal for a single-family residence on an individual lot would deny all reasonable use of the property; or b. sewer service is not available for a proposed short subdivision of urban property in a timely or reasonable manner as determined by the Utility Technical Review Committee. There shall be no further subdivision of lots created under this policy unless served by public sewers.” Policy F-256 says, “In the Urban Growth Area, King County and sewer utilities should jointly prioritize the replacement of on-site systems that serve existing development with public sewers, based on the risk of potential failure.” At this time, there are 39,765 on-site sewage systems located in UGAs (see following Map of OSS in UGAs).

Those policies prohibit municipal sewage service outside of UGAs/in rural areas. Policy F-264 says, “Except as otherwise provided for in this policy, public sewer service shall be prohibited in the Rural Area or on Natural Resource Lands.” Those policies also intend OSS to be a permanent method of sewage treatment in areas outside of the UGAs. Policy F-260 says, “Onsite wastewater treatment systems in the Rural Area and Resource Lands should be designed, built and operated as permanent methods of sewage disposal”. They do allow some exceptions for the extension of sewers, but only in cases of addressing health and safety problems of existing structures or for planned and authorized rural schools (Policy F-264). For more information about The Plan, see the King County Executive’s Regional Planning webpage at: <http://www.kingcounty.gov/depts/executive/performance-strategy-budget/regional-planning/king-county-comprehensive-plan/2012Adopted.aspx>.

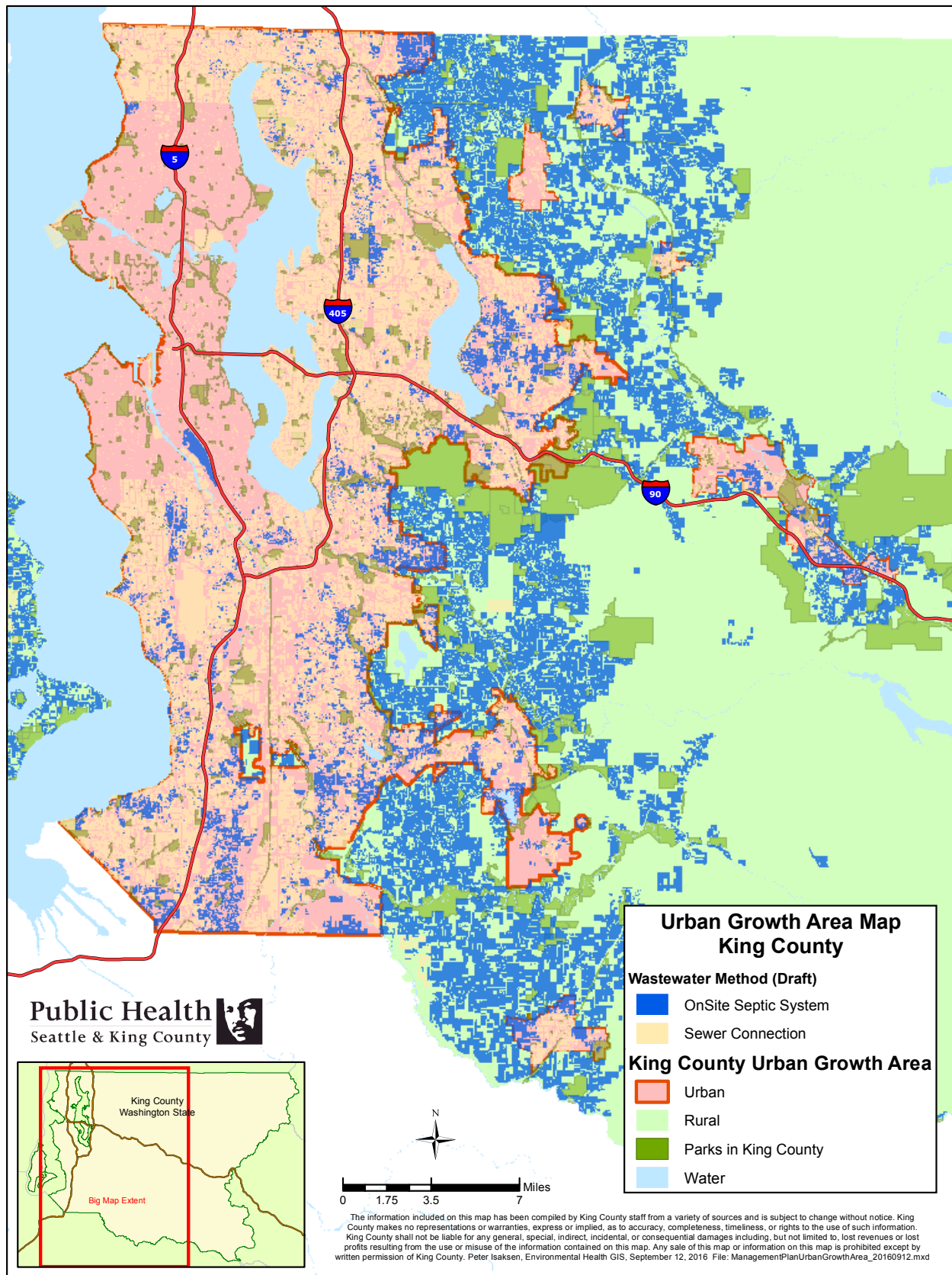


Figure 8, Wastewater treatment types Urban Growth Areas.

Work Group Geographic Priority Recommendations

The county should seek funds to focus in the following priority areas:

- 1) Focused attention where OSS impact shellfish growing areas and fecal coliform contamination; including areas where fresh waters, associated with these marine waters, could be contributing to these problems.
- 2) Respond to failure referrals from storm water agencies that have determined, through testing and elimination of other sources, which OSS failures are contributing to surface water pollution. The work group recommended this as a priority, however current funding does not fully support this work.

The following priorities should be added and addressed proactively as resources permit:

- ▷ An equity and social justice priority (<http://www.kingcounty.gov/elected/executive/equity-social-justice/strategic-plan.aspx>) under WAC 246-272A-0015(1)(b)(x) Other areas designated by the local health officer.
 - ▷ The designation of additional MRAs.
 - ▷ Addressing areas with TMDLs and other impaired areas*:
 - Areas with TMDLs currently include: Boise Creek, Pussyfoot Creek, Second Creek, Piper's Creek, Swamp Creek, North Creek, Bear Creek, Little Bear Creek, Evans Creek, Fauntleroy Creek, Issaquah Creek and Tibbetts Creek.
 - Impaired areas currently include: Puget Sound, Elliott Bay, Duwamish River, Green River, Mill Creek, Des Moines Creek, Big Soos Creek, Little Soos Creek, Newaukum Creek, Crips Creek, and Bear-Evans Creek.
- *Note: Ecology maintains a list of "impaired water bodies", called the 303d List for King County marine areas and their tributaries. The 303d list is used to identify a "Total Maximum Daily Load" (TMDL), a regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.*
- ▷ Critical Aquifer Recharge Areas (with emphasis on aquifers used for potable water); these areas currently include:
 - King County Groundwater Management areas: Vashon-Maury Island, Redmond-Bear Creek Valley, Issaquah Creek Valley, East King County, South King County.
 - US EPA designated sole-source aquifers: Cedar Valley/Renton Aquifer, Vashon-Maury Island Aquifer, Cross Valley Aquifer/Snohomish County, City of Issaquah Aquifer.
 - ▷ Lands zoned for industrial or commercial land uses, and sites with impacts greater than a single family residence, such as schools.
 - ▷ Other considerations:
 - Environmental/development implications
 - Higher development density/areas with higher population density
 - Age of the OSS (Nationally accepted design standards came into force in 1978-79. OSS installed prior to that time frame are at a greater risk of failure.)
 - Problematic areas identified through past sanitary surveys.

PART 3 – OPERATION AND MAINTENANCE IN INCREASED RISK AREAS

Introduction

Washington Administrative Code 246-272A is the set of state rules that governs OSS. Specifically, WAC 246-272A-0015(1)(b) directs that areas of increased risk, because of specific characteristics listed in that WAC, must be given higher levels of attention than other areas without those characteristics.

It also requires; in subsections (1)(c), (e) and (g); that the OSS Plan specify how King County will:

- ▷ Identify operation, maintenance and monitoring requirements commensurate with risks posed by OSS in priority geographic areas
- ▷ Remind and encourage homeowners to complete the operation and maintenance inspections required by the WAC
- ▷ Enforce OSS owner permit application, operation, monitoring and maintenance, and failure repair requirements defined in the WAC.

To implement that WAC, those areas of increased risk must be identified, and OSS in those areas must undergo higher levels of scrutiny with regard to their O&M practices. One way to accomplish that is to create areas with special designations, such as MRAs, shellfish protection districts, watershed protection areas, or other designations.

Example Protocol for Special Area Designations

The protocol described below is currently used in Thurston County, Washington (Thurston County Sanitary Code, Article IV, Appendix A). It designates areas with significant pollution from OSS as “Watershed Protection Areas” and institutes additional requirements on OSS owners in those areas. This protocol could be applied to increased risk areas or MRAs in King County.

Two areas currently under this protocol in Thurston County include Henderson Inlet and the Nisqually Reach (Thurston County Sanitary Code, Article IV, § 22.4, 22.5 and Appendices A-1 and A-2). This protocol includes the following actions:

1. An official Watershed Protection Area is created by a Board of Health (BOH) resolution.
2. An official Watershed Protection Area Map is developed, which includes all property in the specified Area. That official map is a parcel-specific map which is administratively adopted and maintained by the OSS program. If any portion of a parcel is within that designated Area, the entire parcel is considered to be included. The OSS program reviews the Area map annually to update its boundary, based on new environmental information, locations of OSS or other relevant factors.
3. Enhanced OSS O&M Regulations are adopted for all properties served by an OSS where any portion of that OSS (including a building and any collection, transport, treatment, and/or disposal components) is within the Watershed Protection Area. Those additional O&M requirements include:

- a. A Requirement to obtain and maintain an OSS Operational Certificate for each OSS within the Area. An initial certificate is issued if the OSS is in compliance with all applicable regulations. After issuance, the requirements to maintain the certificate include routine inspections and submission of inspection reports to the OSS program. An operational certificate is not issued or renewed for a system that is failing. The OSS program in Thurston County established a schedule to phase-in the implementation of operational certificates.
 - b. High and Low Risk Systems would be designated by the OSS Program using defined policies, procedures and criteria. The Program sets minimum inspection and evaluation requirements for all OSS within the Area, based on those high or low risk determinations. The criteria to rank OSS would be based on soil type, proximity to surface water and other appropriate factors.
 - i. A High Risk System are OSS that, if it fails, would pose a high risk to public health by degrading water quality.
 - ii. A Low Risk System are OSS that, if it fails, would pose a lower risk to public health and would be less likely to degrade to water quality.
 - c. Dye Trace Evaluations are a condition of an initial issuance of an operational certificate for High Risk Systems. This test is required to determine whether or not the system located along a shoreline is failing. After that, dye trace evaluations are required every other time a certificate is renewed. Dye trace evaluations in Thurston County are conducted in accordance with OSS program policies and procedures. Dye trace evaluations are performed by OSS program staff or other persons approved by the OSS Program.
4. Owner Requests for a Review of whether their property should be subjected to the requirements of the Protection Area could be made once a year.
 - a. The conditions of an appeal in Thurston County only include whether the:
 - i. Property is served by an OSS.
 - ii. Property, or any components of the OSS, is correctly located within the Watershed Protection Area.
 - iii. OSS is correctly classified as a high or a low risk system.
 - iv. No other review conditions, or appeal would be allowed.
 5. Corrections and Adjustments might be made to the Area by the OSS program as new information is obtained. Those corrections might include changing the properties included in the Area, OSS risk rankings, conditions in operational certificates, and other appropriate adjustments. Any expansion of the Watershed Protection Area would require action by the Board of Health. Property owners affected by any corrections and adjustments would be notified of such corrections and adjustments in a designated number of days prior to the effective date of those changes.

6. An Annual Fee is charged in Thurston County for the annual issuance or renewal of each operational certificate. Those fees were set by the Thurston County BOH and apply to all properties with an OSS within the Watershed Protection Area. The fees pay for dye testing and other OSS Program activities within the Area.
7. A Program Evaluation is required in Thurston County to be conducted by the OSS Program five years after the creation of the Watershed Protection Area and every five years thereafter, and a report would be submitted to the local Board of Health.

PART 4 – MARINE RECOVERY AREAS (MRAs)

Introduction

RCW 70.118A, On-site Sewage Disposal Systems - Marine Recovery Areas, was enacted “to authorize enhanced local programs in marine recovery areas to inventory existing on-site sewage disposal systems, to identify the location of all on-site sewage disposal systems in marine recovery areas, to require inspection of on-site sewage disposal systems and repairs to failing systems, to develop electronic data systems capable of sharing information regarding on-site sewage disposal systems, and to monitor these programs to ensure that they are working to protect public health and Puget Sound water quality.”

70.118A.040, Local health officers—Determination of marine recovery areas, says “(1) In developing on-site program management plans required under RCW 70.118A.030, the local health officer shall propose a marine recovery area for those land areas where existing on-site sewage disposal systems are a significant factor contributing to concerns associated with: (a) Shellfish growing areas that have been threatened or downgraded by the department under chapter 69.30 RCW; (b) Marine waters that are listed by the department of ecology under section 303(d) of the federal clean water act (33 U.S.C. Sec. 1251 et seq.) for low-dissolved oxygen or fecal coliform; or (c) Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

It further states, “(2) In determining the boundaries for a marine recovery area, the local health officer shall assess and include those land areas where existing on-site sewage disposal systems may affect water quality in the marine recovery area.

In 70.118A.050, Marine recovery area on-site strategy, the law directs that “(1) The local health officer of a local health jurisdiction where a marine recovery area has been proposed under RCW 70.118A.040 shall develop and approve a marine recovery area on-site strategy that includes designation of marine recovery areas to guide the local health jurisdiction in developing and managing all existing on-site sewage disposal systems within marine recovery areas within its jurisdiction.” It further directs that “(2) An on-site strategy for a marine recovery area must specify how the local health jurisdiction will by July 1, 2012, and thereafter, find: (a) Existing failing systems and ensure that system owners make necessary repairs; and (b) Unknown systems and ensure that they are inspected as required to ensure that they are functioning properly, and repaired, if necessary.”

Protocol for Designating MRAs

As defined in RCW 70.118A, the criteria for the establishment of an MRA are any one of the following four conditions:

- ▷ Threatened or downgraded shellfish growing areas
- ▷ Marine waters threatened by low dissolved oxygen
- ▷ Marine waters threatened by fecal coliform
- ▷ Marine waters contaminated by nitrogen.

Thus far, Public Health has designated one MRA on Vashon-Maury Island, however, additional areas may need to be designated. The current MRA was so designated because surveys by the Washington State Department of Health indicated that there were OSS failures along portions of the western shoreline of Vashon and Maury Islands.

Inspection Requirements in MRAs

To ensure that all OSS within an MRA are functioning properly, additional inspection requirements are used. Those requirements for all OSS within an MRA include:

- ▷ A professional inspection for all systems (including gravity systems) within 5 years of an MRA designation. Where there is no record of an inspection, the new inspection must include a report that identifies the system type, its location and functionality, and a record drawing.
- ▷ Having a record drawing on file with Public Health, or submitting a record drawing, within 5 years of an MRA designation.
- ▷ Annual professional inspections of all OSS unless the manufacturer requires more frequent inspections.
- ▷ Sanitary surveys conducted by Public Health (if there are sufficient resources or grant funds available).
- ▷ If water front properties are remodeled, their:
 - OSS must be upgraded to meet treatment standards and performance testing levels required in WAC 246-272A-0110, Proprietary treatment products - Certification and registration section
 - Existing plumbing must be retrofitted to meet low flush, low water usage standards.

Additional Needs in MRAs

There are a variety of additional needs to bring out of compliance OSS in MRAs back into compliance. Those needs include finding and documenting all OSS, having a data system to accommodate data from all OSS, maintaining minimum requirements for O&M, identifying failures and ensuring repairs, providing education and outreach to OSS owners, training and certification of OSS industry professionals, and management of the OSS Program by Public Health. The following paragraphs explain each of these needs in more detail.

A definitive identification of all known, assumed and unknown OSS must be made throughout the MRA. This work entails reviewing all OSS files and assessor records, and conducting surveys of OSS owners, and possible owners, about their OSS.

An enhanced data system with a complete and up-to-date information set is needed. To achieve a comprehensive system in an MRA, all scanned OSS microfiche must be indexed so that the data are accessible as text and relational. The data system must also be updated with new records, as applications, permits, and other actions are processed. Information from OSS owner surveys must be entered. And, a new electronic submission form must be developed, with OSS industry professionals, to receive O&M report information electronically. Lastly, the system must be coordinated with King County GIS to locate all OSS on maps and handle queries.

After all systems are located, and their condition is assessed, a minimum level of O&M must be established for all of those OSS in the MRA. Those requirements include an initial professional inspection, annual inspections, and another in-depth professional inspection at the time the property is transferred. Should an OSS owner not comply with these inspection requirements, and provide the appropriate documentation, Public Health would record an out-of-compliance notice on the property's title.

After determination of OSS failures are made, and to ensure repairs, owners must be informed that they are out of compliance and what actions to take to bring them back into compliance. Staff work here involves drafting reports, preparing notice letters, and overseeing mailings. If voluntary compliance is not forthcoming, staff must take enforcement action as needed to gain compliance.

In parallel with taking needed enforcement actions, providing education and outreach is critical to encourage voluntary action for proper O&M and addressing failures. An organized approach involves employing community engagement strategies and partnerships with local community groups to address clusters of failures in specific areas. This engagement also requires enhanced Public Health webpages. These webpages provide MRA specific information to provide affected community members access to technical information, financing options and information about O&M inspection requirements.

Training and certification of OSS industry professionals is another critical piece of the overall strategy to recover an MRA. This requires Public Health to develop an enhanced OSS industry professionals training program for MRAs and conduct that training.

Lastly, Public Health must ensure that it can manage its OSS Program to monitor, track and report progress, and ultimately recover an MRA. It must also be able to investigate new potential MRA areas as complaints and other agencies' actions warrant.

Each of these needs is critical to fill in the puzzle of recovering an MRA. However, all these activities increase OSS Program workloads and will require significant additional staffing, which is not possible with existing resources.

PART 5 – EDUCATION AND OUTREACH TO ENCOURAGE COUNTY-WIDE O&M

Introduction

WAC 246-272A-0015(1)(d) and (e), requires local health jurisdictions (LHJs) to “Facilitate education of homeowners regarding their responsibilities under this chapter and provide operation and maintenance information for all types of systems in use within the jurisdiction.” It also requires LHJs to “Remind and encourage homeowners to complete the operation and maintenance inspections required by WAC 246-272A-0270.”

Under King County Board of Health code, OSS owners are responsible for proper operation and maintenance (O&M) (KCBOH Code 13.60.005), and for repair of failures (KCBOH Code 13.04.060). This is very important for conventional gravity systems and even more crucial for more complex systems. All new and repaired non-gravity systems, installed after 2007, are initially required to have a professional maintenance contract. Many owners cancel the contract later because they are either not aware of the importance of the higher levels of O&M needed for non-gravity systems, or believe that their on-site sewage system does not need maintenance as frequently as the contract suggests. OSS owners must be provided with the information about inspections and maintenance and why it is critical, and about the high costs of repairing systems that fail because of too infrequent maintenance.

Education and Outreach Options

The list below shows the array of possible education and outreach methods. It does so by breaking them down by applicable audience, which includes:

▷ For All Audiences (baseline work):

- Preparation of outreach materials that explains: how to know if you have an OSS, how OSS work, what your obligations are if you have an OSS, how to properly operate and maintain your OSS, and how to identify and fix OSS failures.
- Information available on-line is important to provide information to owners of systems, purchasers, realtors, and professionals.

▷ For the General Public (open access):

- Mass media: newspapers, radio, TV, KCTV, social media platforms (podcasts, twitter, etc.)
- Signage in public places (e.g., bus placards street signage, etc.)
- Information websites/mobile apps/streaming videos
- Community presentations (for general audiences)
- Technical support phone-line/e-mail/text/other e-media vehicles
- On-site/on-demand technical support/consultation.

▷ For New OSS owners (targeted audience):

- Direct mailings

- Internet access to record drawings/O&M records
- Customized outreach to historically underserved populations; and
- Information materials provided with permits for new OSS installations.
- ▷ For Owners of existing OSS (targeted audience):
 - Email reminders for inspection notifications & educational opportunities
 - Direct mailings (for general info. and specific service reminders)
 - Door hangers
 - Presentations to targeted/invited audiences
 - Internet access to record drawings/O&M records
 - Customized outreach to historically underserved populations
 - Information materials provided with permits for OSS repairs/expansions.
- ▷ For Realtors/real estate agents (targeted audience):
 - Training for agents
 - Information materials for agents for their customers.
- ▷ For OSS Industry (Installers, Maintainers, Pumpers) (targeted audience):
 - Training for industry professionals
 - Information materials for industry professionals for their customers.
- ▷ For Other Agencies (King Conservation District; King County Dept. of Natural Resources and Parks, Storm water staff; City Water Quality/Storm water staff; relevant King County Dept. of Permitting and Environmental Review permitting staff; public sewer service providers) (targeted audience):
 - Training for other agencies' field staff
 - Information materials for other agencies' field staff for relevant citizen contacts.

Proposed Education and Outreach within Current Funding Constraints

With no new or additional funding, Public Health is proposing to pursue the following courses of action. The activities listed below are in priority order. They will be undertaken based on the funding that is available.

- 1) Informational materials will be prepared and/or existing educational materials will be used if possible, or re-packaged as needed to meet the needs of special audiences. For example, basic information will include explanations of: how to know if you have an OSS, how OSS work, what your obligations are if you have an OSS, how to properly operate and maintain your OSS, and how to identify and fix OSS failures.

- 2) Website development will be used as a passive information conduit. The stock information described in number 1 above will be posted and maintained at a minimal level on Public Health's website.
- 3) Database work will be undertaken so that it can be integrated with the Public Health website to provide homeowners with on-line O&M service data and record drawing access for their property.

If any additional resources are identified, Public Health is proposing to undertake the additional activities listed below (in order of priority):

- 4) Partner with OSS Industry Professionals to provide information to OSS owners about their O&M responsibilities.
- 5) Partner with Real Estate Agents to provide information to homebuyers with OSS about their O&M responsibilities.
- 6) Provide service reminders, possibly in the form of direct mail, to OSS owners in areas with documented bacterial pollution.
- 7) Partner with King County Dept. of Permitting and Environmental Review and City Permitting Departments to provide information to permit seekers with OSS about their O&M responsibilities.
- 8) Partner with King Conservation District to provide information to permit seekers with OSS about their O&M responsibilities.

Additional Education and Outreach in MRA(s)

In addition to the actions proposed previously, Public Health will undertake as many of the following actions as possible, within its funding constraints:

- 1) Producing additional specific information for OSS owners in MRAs
- 2) Enhancing Public Health's website with specific MRA information webpages
- 3) Providing industry training related to MRA requirements, and the industry's and Public Health's roles in implementing those requirements
- 4) Engaging targeted community groups in community planning to develop specific solutions in specific areas.

PART 6: PLAN IMPLEMENTATION AND FINANCING

Introduction

The *2007 King County OSS Management Plan* was written to comply with state laws and regulations which require local health jurisdictions to protect public health and the environment from improperly operated and maintained, and failed, on-site sewage systems (RCW 70.118A and WAC 426-272). However, sustainable financing of Public Health's OSS Program was never enacted, and that Plan was never funded. Consequently, many of the actions that were spelled out within the Plan were never taken and its goals, and compliance with those laws and rules, were not achieved.

This 2016 Plan Update is being undertaken to revise and update that 2007 Plan and set goals at more realistic levels, based on a continuing dearth of funding and no change to that situation on the horizon. It uses recommendations by the Work Group to focus its priorities and be as frugal with its resources as possible. It also attempts to address the bare minimum of actions required by the law within currently available funding. Should additional funding become available in the future, from whatever source, many of the Plan's provisions could be scaled up to address more problems.

2016 Work Group Recommendations

The Work Group that was assembled to update this 2016 King County OSS Management Plan reviewed several Public Health staff proposals and made recommendations for the OSS Program. Most of those recommendations are incorporated in the relevant parts of this Plan. They are also specifically listed here to highlight them, and to help focus Public Health on implementing them.

With regard to database needs, the Work Group suggested that Public Health:

- ▷ Focus its efforts on building and maintaining a robust database as a foundation for all of its other OSS Program efforts
- ▷ Require electronic submittal of all OSS inspection and service reports (with the stipulation that the reporter not incur any additional tax liability), to increase data entry efficiency and eliminate duplicative work.

With regard to Increased-Risk Areas, the Work Group suggested that Public Health:

- ▷ Adopt Thurston County's high-risk areas protocol (see Part 3 – Operation and Maintenance in Increased Risk Areas, in this Plan), with mandatory dye testing done on a 3-year-minimum basis (one Work Group member reversed their support, at a later meeting, for using this protocol)
- ▷ Consider surface water pollution contributions to marine waters, in conjunction with the priority problems of marine waters, which are required to be addressed in RCW 70.118A.040 (pollution of shellfish growing areas, low-dissolved oxygen problems, fecal coliform contamination, or nitrogen problems)

- ▷ Also focus on responding to failure referrals from storm water agencies that have determined, through testing and elimination of other sources, that OSS failures are contributing to surface water pollution.

With regard to education and outreach, the Work Group suggested that Public Health:

- ▷ Adopt the education and outreach recommendations in this Plan (see Part 5 – Education and Outreach, in the Plan), with the caveat of providing as much education and outreach as possible using all available resources
- ▷ Engage communities with OSS problems using a community planning approach to help address those problems (within funding constraints)
- ▷ Consider the use of demonstration projects to help educate OSS owners about how their OSS operates, and the importance of proper OSS operation and maintenance.

With regard to general recommendations, the Work Group suggested that Public Health:

- ▷ Continue to seek grant funding to the greatest extent possible to support the OSS program
- ▷ Budget for one-time actions (e.g., the OSS inventory) then reduce the OSS Program's budget after that work is completed
- ▷ Improve/maximize coordination amongst agencies to maximize efficiency and effectiveness
- ▷ Not have OSS owners in one area from paying for OSS problems in other area
- ▷ Research other counties' OSS program approaches to see what can be adopted from them
- ▷ Require professional inspections of the homeowner portion of LOSS (large on-site sewer systems) every 3 years and at the time of sale or transfer of the property.

OSS Program Financing and OSS Owner Support

The OSS Program is currently funded through grants and fees. The current grants are ending this year and will no longer be available. The Program's time-of-transfer fee is collected to ensure that a property's OSS is permitted, functioning and all of its O&M records are up to date at the time a property is sold or transferred. The O&M inspection/monitoring fee is collected when a property is inspected, and is used to update a property's OSS O&M records and to ensure that O&M is being done.

These fees are restricted to paying for the work that they are specifically collected for. Neither current grants nor fees can satisfy all of the requirements of a comprehensive OSS management program. This is the case both in terms of the type of work that can be done as well as the total amount of resources that they might provide – there is not enough money available through these sources nor do they provide the flexibility that is needed.

In addition to funding Public Health OSS Program staffing, resources are needed to support OSS owners and incentivize their proper operation and maintenance of their systems. Public Health is providing logistical support for a new low-interest OSS repair loan program, which is supported by the Washington State Departments of Health and Ecology. Other incentives, such as subsidizing the installation of risers, maintenance inspection costs, pumping fees, and other

O&M related costs, could help increase OSS O&M by homeowners. However, funding for these types of incentives cannot be made available until sustainable funding is identified for the OSS Program as a whole.

GLOSSARY

303d List: the list required by the Federal Clean Water Act of water bodies for which beneficial uses, such as drinking, recreation, aquatic habitat, and industrial use, are impaired by pollution

BOH: Board of Health.

BOH Title- 13: the King County Board of Health Code governing on-site sewage systems.

CARA: Critical Aquifer Recharge Area.

CWA: The Clean Water Act amendments to the Federal Water Pollution Control Act in 33 USC §1329 et. seq. (2002).

ESJ: Equity and social justice.

GMA: Washington State Growth Management Act.

KC BOH: King County Board of Health.

LHJ: local health jurisdiction, such as Public Health – Seattle and King County for all the area within King County, both unincorporated and within cities.

LOSS: large on-site sewage systems; any on-site/decentralized sewage system that treats between 3,500 and 100,000 gallons of sewage per day. LOSS are regulated by WA DOH.

Marine Waters: this refers to seawater, ocean water or saltwater, such as the waters of Puget Sound; the other types of waters are fresh (non- saltwater) and brackish (a mixture of fresh and saltwater).

Municipal sewage treatment systems: systems that treat >1,000,000 gallons of sewage per day. Municipal sewage treatment systems are regulated by Ecology.

MRA: Marine Recovery Area(s), an area designated for special attention because of the pollution of marine waters and resources by OSS.

O&M: operation and maintenance.

OSS: on-site sewage systems, also known as septic systems; any onsite/decentralized sewage system that treats <3,500 gallons of sewage per day. OSS are regulated by LHJs.

PH or PHSKC: Public Health – Seattle and King County.

Public Health: Public Health – Seattle and King County.

RCW: Revised Code of Washington; Washington State statutes.

Increased risk Areas: these are areas specified in WAC 246-272A-0015.

TMDL: Total Maximum Daily Load is a pollution budget which is set for a specific pollutant(s) to aid in its control in a waterbody or watershed.

WA DOH or DOH: Washington State Department of Health.

WA Ecology or Ecology: Washington State Department of Ecology.

WAC: Washington Administrative Code; rules made from Washington State statutes.

UGA: Urban Growth Area is the area or areas within which urban growth shall be encouraged and outside of which growth can occur only if it is not urban in nature, per RCW 36.70a.110(1).

US EPA or EPA: United States Environmental Protection Agency.

USC: United States Code.

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